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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,290	07/31/2003	Daniel R. Blakley	200206025-1	5076
22879	7590	01/18/2006	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			MILLER, ROSE MARY	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,290

Applicant(s)

BLAKLEY, DANIEL R.

Examiner

Rose M. Miller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13,27,31,37,38 and 52-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27,31,37,38,53 and 54 is/are allowed.
- 6) ☒ Claim(s) 13,52 and 55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Withdrawal of Allowable Subject Matter

1. The indicated allowability of claims 13, 52, and 55 is withdrawn in view of the newly discovered reference(s) to **Ravel et al. (US 5,488,866)** and **White et al. (US 5,189,914)**.

Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 13 and 55 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by **Ravel et al. (US 5,488,866)**.

With regards to claim 13, **Ravel et al.** discloses a transducer array (10) including a plurality of transducers (sensors 12), where at least one transducer in the transducer array is configured to have a sample material attached thereto (see column 1 lines 11-45, sample attached via coatings) and where the transducers are surface acoustic wave devices (see column 1 lines 11-25); an output processing subsystem (frequency counter 40 with microprocessor 50) coupled with the transducer array; a selector (microprocessor 50 with MUX 20) coupled with the transducer array (10) and configured to selectively activate transducers within the transducer array by applying enabling signal to the transducer array for at least one, but less than all, of the transducers (see column 2 lines 15-35), such that the transducer array includes at least one selected transducer and at least one unselected transducer, where; for a selected transducer, application of the enabling signal enables a transmission path between the selected transducer and the output processing subsystem (frequency counter 40 with microprocessor 50), thereby permitting output signals to be transmitted from the selected transducer to the output processing subsystem (see column 2 lines 15-35); and the transducer array is configured to isolate any unselected transducers from the output processing subsystem (MUX isolates unselected transducers), where such isolation is obtained by disabling the transmission paths, thereby substantially preventing output signals from being transmitted from

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the unselected transducers to the output processing subsystem (inherent in the MUX switch disclosed).

With regards to claim 55, **Ravel et al.** discloses a transducer-based sensor system (see Figure) comprising a transducer array (10) including a plurality of transducers (sensors 12) configured to be placed into operative proximity with a sample material (see column 1 lines 11-45), and configured to produce electrical output based upon drive signals applied to the transducers and upon the sample material (see column 2 lines 15-35), where at least one transducer in the transducer array is a surface acoustic wave device (see column 1 lines 11-25); an output transmission path associated with each transducer (MUX is connected to each individual transducer), each output transmission path being defined between its associated transducer and an output processing subsystem (frequency counter 40 with microprocessor 50) configured to receive electrical output from the transducers; and a selector (microprocessor 50 with MUX 20) configured to control activation and deactivation of portions of the transducer array (10) by enabling and disabling the output transmission paths such that each output transmission path is either enabled, thereby allowing transmission of electrical output from the respective transducer to the output processing system, or disabled, thereby preventing transmission of electrical output from the respective transducer to the output processing system (see column 2 lines 15-35).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ravel et al.** in view of **White et al. (US 5,189,914)**,

Ravel et al. discloses the claimed invention with the exception of the transducer array being implemented within a microchip.

Ravel et al. teaches at column 1 lines 46-53 the need and desire to have a measurement instrument that may be readily held in one's hand. And that to accomplish this

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one must reduce the power consumption and parts count as well as to prevent frequency locking between oscillators so each acoustic wave sensor in an array responds independently from the others.

White et al. teaches in Figure 23 and at column 19 line 33 – column 20 line 11 that the placement of a transducer array on a single chip is known in the art of chemical analysis,

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of **Ravel et al.** to include a transducer array implemented on a single microchip as taught by **White et al.** as the use of an array on a single microchips would further meet the goal of **Ravel et al.** by allowing the system to be implemented in such a way as to allow for the measuring instrument to be readily held in an operator's hand while allowing for the prevention of frequency locking between oscillators.

Allowable Subject Matter

6. Claims 27, 31, 37, 38, 53, and 54 are allowed.

7. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach and/or suggest a transducer-based sensor system comprising, in combination with the other elements recited, for each transducer, a switch coupled between the transducer and the transducer's local drive signal generator, the switch being configured to close if the output transmission path for the transducer is enabled, and to open if the output transmission path for the transducer is disabled.

The prior art of record also fails to teach and/or suggest a transducer-based sensor system comprising, in combination with the other recited elements, a transducer array where the transducers are configured to provide both bulk wave and surface wave modes of operation, an output transmission path associated with each transducer, and a selector configured to control activation and deactivation of portions of the transducer array by enabling and disabling the output transmission paths.

The prior art of record also fails to teach and/or suggest a method of performing sensing operations on a sample using a transducer array, the method comprising, in combination with the other recited steps, the transducer array including a local drive signal generator for each transducer of the transducer array, and where activating one or more of the transducers within

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the transducer array including closing a switch between the transducer to be activated and the local drive signal generator associated with such transducer.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mariani et al. (US 5,321,704) discloses a surface acoustic wave chemical multi-sensor array.

Bowers et al. (US 6,321,588 B1) discloses a chemical sensor array.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rose M. Miller whose telephone number is 571-272-2199. The examiner can normally be reached on Monday - Friday, 7:30 am to 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



RMM
13 January 2006



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